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REPORT TO THE CONGRESS



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Should The Gama Goat Be Improved Or Replaced?

Department of Defense

Comments made by users of the U.S. Army's Gama Goat or M561 Cargo Truck to GAO and the Army raise questions on the effectiveness of this vehicle in performing its basic mission. The Army is planning a product improvement program to increase the performance of the vehicle. GAO questions whether many of the serious problems can be corrected without major and costly modifications.

GAO believes that increased attention should be given to the consequences that could result if the vehicles are operated in combat. Before the Army undertakes the product improvement program, the vehicle should be tested under simulated combat conditions under the supervision of an independent testing organization to determine whether to proceed with the program or whether to replace the vehicle.

PSAD-76-48

DEC. 9, 1975

~~702506~~ 096895



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-133256

To the President of the Senate and the
Speaker of the House of Representatives

This is our report entitled "Should the Gama Goat be Improved or Replaced?" This report summarizes the results of our examination of improvements made to the Gama Goat to help it operate satisfactorily.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget and to the Secretaries of Defense and the Army.

A handwritten signature in dark ink, which appears to read "James B. Stewart", is positioned above the printed title.

Comptroller General
of the United States

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ABBREVIATIONS

AMC	U.S. Army Materiel Command
DOD	Department of Defense
GAO	General Accounting Office
TACOM	U.S. Army Tank-Automotive Command
TRADOC	U.S. Army Training and Doctrine Command

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

SHOULD THE GAMA GOAT BE
IMPROVED OR REPLACED?
Department of Defense

D I G E S T

FINDINGS

The Army is planning a product improvement program costing about \$5.6 million to correct some defects in its M561 Cargo Truck, (Gama Goat). GAO interviewed over 200 Army personnel who operate and maintain the Gama Goat. Their comments raised questions on the effectiveness of the vehicle in performing its basic transport mission--its drivability, durability, and maintainability. (See pp. 4 and 5.)

GAO advised the Army of the results of the interviews and the Army conducted a similar survey, interviewing 735 people. Eighty-three percent rated the noise level of the vehicle from loud to deafening. GAO was told this noise level restricts the vehicle's usefulness and makes necessary radio communication impossible. (See p. 3.)

Of the 520 people surveyed by the Army on the matter of ease of entry and exit of the Gama Goat, 418 said that it was difficult to enter and 431 said that it was difficult to exit the vehicle. Thus occupants could be trapped in the vehicle as a result of an ambush or rollover. (See p. 4.)

RECOMMENDATION

GAO recommends that the Secretary of Defense arrange to have the vehicle tested under simulated combat conditions to determine its ability to perform its mission. This evaluation should be monitored by an independent Department of Defense organization, such as the Office of the Deputy Director for Test and Evaluation, and should address the questions of whether the vehicle should be retained and a product improvement program undertaken or whether it should be replaced. (See p. 8.)

DEPARTMENT OF DEFENSE
COMMENTS

The Department of Defense did not agree with GAO's recommendation because it believes that sufficient data exists from extensive testing and field usage to support the decision that the vehicle be retained and improved. In addition, the Department believes a replacement vehicle would be costly and would require substantial time to develop. (See p. 7.)

GAO EVALUATION

Increased attention needs to be given to the consequences of operating the vehicle in combat, the long-range cost and benefits of retaining the Gama Goat as an operational vehicle, and the potential for a high frequency of repair and difficulty of maintenance.

GAO still believes that it would be desirable to conduct a test program before the Army commits itself to a product improvement program. (See pp. 7 and 8.)

CHAPTER 1

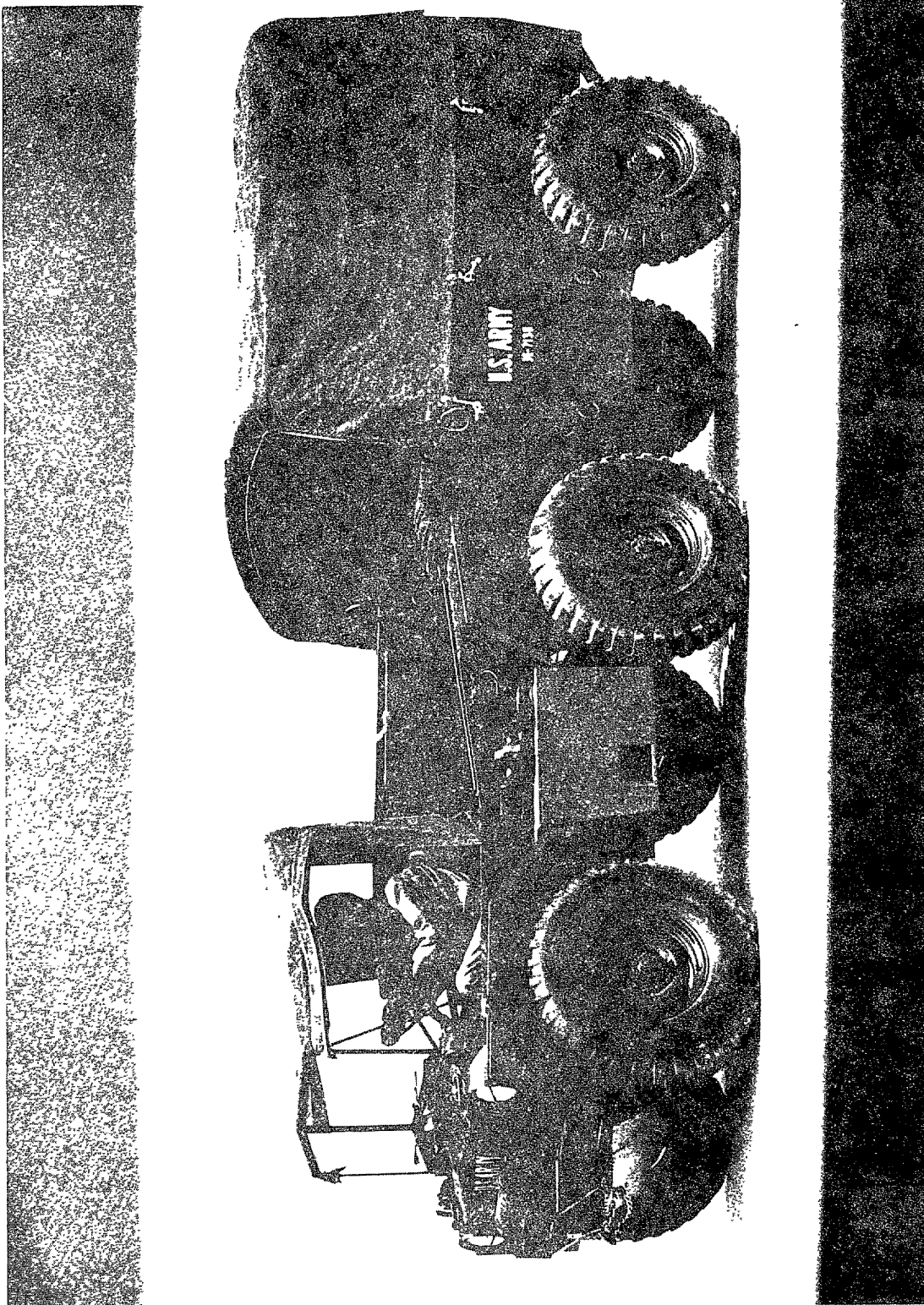
INTRODUCTION

The Gama Goat (M561)--a 1-1/4-ton truck (see picture on p. 2)--is designed for high mobility over adverse terrain and is intended for worldwide use by infantry, armor, engineer, signal, and airborne units. Over 14,000 of these vehicles--costing over \$200 million--were purchased to replace existing 3/4-ton trucks and reduce requirements for other tactical vehicles. The vehicle was developed by Ling-Temco-Vought Corporation and produced by Consolidated Diesel Electric Company under contracts with the U.S. Army Tank-Automotive Command (TACOM).

The Gama Goat's development, production, and initial deployment took over 10 years and has been the subject of much controversy. GAO, in a January 1971 report to the Congress (B-133256), expressed the opinion that the Army should not enter full-scale production when essential military characteristics had not been met and known defects in the vehicle had not been resolved. This report was followed in April 1971 by an Army Audit Agency report which also cited the failure of the Gama Goat to meet all the required operational characteristics.

In a July 1972 report, the Investigating Subcommittee of the House Armed Services Committee criticized the Army for authorizing worldwide issuance of the Gama Goat to U.S. Forces despite numerous defects found in production models by the Army's Test and Evaluation Command. The Committee report cited numerous deficiencies which were attributed to poor manufacturing of a poorly designed vehicle. In its reply to the Committee, the Army claimed that the problems had been largely overcome and the vehicle had met essential requirements. Accordingly, the Army completed production of the Gama Goat in July 1973.

We initiated this review to find out if the Gama Goat was now operating satisfactorily. We visited Fort Carson, Colorado; Fort Bragg, North Carolina; and Camp LeJeune, North Carolina, and obtained Army and Marine Corps personnel opinions regarding the operational value of the vehicle and its drivability, durability and maintainability. We found that many of the deficiencies cited by the House Armed Services Committee in its July 1972 report still had not been resolved.



Courtesy of U.S. Army

M561 Cargo Truck, Gama Goat

CHAPTER 2

USER COMMENTS ON GAMA GOAT EFFECTIVENESS

Comments by user personnel raised questions relating to the effectiveness of the Gama Goat in performing its basic transport mission. At the 3 installations visited, we obtained comments from over 200 operating and maintenance personnel on the performance and maintainability of the Gama Goats. Almost all of the Army personnel expressed some dissatisfaction. Comments made by Marine Corps personnel at Camp Lejeune were less severe, but they had had less experience with the vehicle. Many of the derogatory remarks were general and some were specifically directed at particular vehicle features and components, ranging in significance from driver discomfort to major component breakdowns. Appendix I lists other specific criticisms.

We advised the Army of the results of these visits and after receiving our preliminary report, the Army conducted its own survey at 6 Army installations covering 735 personnel and gave us the results, which have been incorporated in this report.

MISSION PERFORMANCE

Unit commanders and drivers told us that engine noise, which they say has been measured at about 95 decibels, ^{1/} restricts the vehicle's usefulness and that necessary and constant on-the-move radio communication is impossible because of the excessive noise of the engine. Drivers have been issued earplugs when operating the vehicle but said that the plugs prevent them from hearing commands and instructions. Excessive noise also contributes to the severity of mechanical breakdowns because mechanical failures are not heard in the early stages. Eighty-three percent of the personnel interviewed by the Army rated the noise level loud to deafening.

One of the performance characteristics specified for the Gama Goat was the ability to swim and float so as to permit inland water crossings on a wide front without the necessity of vehicles grouping at bridges, ferries, and other water crossings. The Army, however, has limited the use of the vehicle in water so that this characteristic has not been fully realized.

^{1/}The level of 85 to 90 decibels is usually considered harmful to human beings.

The operators' manual contains specific instructions, cautions, and warnings about operating the vehicle across water. These require the operator to stop the vehicle before entering the water and inspect it for watertight integrity. (Many of the vehicles have damaged tailgates, which would cause them to sink.) The places at which the vehicle can enter and leave the water are limited to places having a gentle bank angle with tight soil conditions. Speed of entry is restricted to a maximum of 2 miles an hour, and entry cannot be made when a stream has a current exceeding 4 miles an hour or when the wind blows over 20 miles an hour. Only a few drivers that we talked to had any experience in swimming the vehicle on a lake, and none had crossed a stream with one.

In commenting on our preliminary report, the U.S. Army Materiel Command (AMC) agreed that swimming the vehicle under certain payload conditions was a critical safety hazard. AMC stated that vehicle freeboard ^{1/} was inadequate because of its nosedown attitude and that without payload it would have practically no freeboard in front. Only 40 drivers of 439 interviewed by the Army had experience in swimming Gama Goats.

DRIVABILITY

Drivers complained that the vehicle is difficult to operate, has a tendency to pop out of gear, and has gears that are difficult to shift while the vehicle is moving. They also said that unless care is exercised when engaging the clutch or shifting, the axle or propellor shaft universal joints may break. Many drivers also said it is difficult to enter and leave the vehicle, and some said that they do not want to drive it in combat because they could be trapped in an ambush or in a rollover.

Drivers also observed that the vehicle was dangerous to operate on wet or muddy roads because the center wheels throw mud and water onto the inside of the windshield which the driver must constantly wipe. Some said that driving the vehicle is extremely fatiguing because of its uncomfortable cab, poor handling, and excessive noise.

The Army stated that the complaints about cab comfort and handling were usually voiced by tall individuals. The U.S. Army Training and Doctrine Command (TRADOC) attributed problems experienced by some drivers in shifting the vehicle to a tight shift pattern and lack of training.

^{1/}The space between the water level and the top of the vehicle.

According to TRADOC, broken propellor shafts and universal joints were caused by improper engagement of the clutch. Of 520 surveyed by the Army on ease of entry and exit, 418 said that it was difficult to enter and 431 stated that it was difficult to exit. Of 431, 130 said that they had encountered mud and water on the inside of the windshield.

DURABILITY AND MAINTAINABILITY

Many complaints listed in appendix I concern the difficulty of routine maintenance and/or the frequency with which repairs need to be made.

The Army has established a reporting system to sample the frequency of vehicle repair and the difficulty of maintenance. The system has consistently provided data showing that the frequency of repair for this vehicle meets accepted Army standards. We believe, however, that the sample is distorted because vehicle usage has been very low. For example, at one installation some 2 year-old vehicles had only about 40 miles on the odometer. At the time of our review all vehicles averaged about 2,400 miles. We do not believe that repair statistics accumulated under such circumstances can reliably predict repair experience under combat conditions.

We were told that the Gama Goat breaks down frequently; that it was not rugged enough to use as a cross-country, rough terrain vehicle; and that the extensive use of aluminum and fiberglass degraded the vehicle's durability. Some users have experienced accidents where rocks or stumps have punched holes in the body.

Twenty-eight percent of the drivers interviewed by the Army had experienced breakdowns. According to AMC, the use of aluminum and other light-weight material was a necessary design alternative to meet weight restrictions imposed by the swimming and airlift requirements. AMC concurred that the use of aluminum, combined with the vehicle's hull-type design, make the underside more vulnerable to body damage. However, AMC believes that it is too early in the vehicle's life to fully assess durability.

Mechanics said the design of the vehicle provides poor access not only to critical repair points, but also to points for routine maintenance. For example, the transmission console and seats must be removed and reinstalled when repairing or replacing the accelerator and engine stop cables. The console must also be removed to make a semiannual transmission oil-level check. Similarly, the usually simple removal and replacement of an oil filter

is made through a limited access hole in the underside of the hull of the Gama Goat, a location that makes it difficult to properly install this part. Likewise, many lubrication fittings are difficult to reach with available equipment and may be overlooked in routine maintenance.

According to AMC the vehicle was judged maintainable by user representatives before troop release. However, 248 of the 708 personnel interviewed by the Army agreed that the design of the vehicle provides poor access to components which need to be maintained.

Data accumulated on the 500 vehicles in the sample monitored by the Army reporting system shows that a number of major components need replacement at low mileage intervals. For example, at the time of our review, five engines had been replaced in vehicles having 3,000 miles or less and eight had been replaced in vehicles with 3,000 to 6,000 miles.

We believe that as vehicle usage increases there is greater likelihood that existing problems will surface more frequently. Malfunctions in critical components, such as transmissions, differential transfers, propellor shafts, clutches, brakes, and steering systems, are being experienced at mileage levels considerably below those at which similar failures occurred during early tests of the vehicle.

SUBSEQUENT DEVELOPMENTS

Since the procurement of this vehicle began, the Army has issued an extensive manual for operators of the vehicle and has modified the vehicle in an effort to overcome some of the problems experienced during the early stages of production. As previously noted, the Army devised a reporting system to obtain early information on defective parts. In addition, the project office has taken action, as a result of our findings, to establish a technical team to provide additional training for drivers and mechanics. It has also developed a list of improvements it would like to make in the vehicle. These include improvements in the (1) power train, (2) suspension system, (3) human factors, including a reduction of the noise level to 85 decibels, (4) swimming capability, and (5) handling characteristics.

These improvements are estimated to cost about \$5.6 million.

CHAPTER 3

CONCLUSIONS, RECOMMENDATION, AND AGENCY COMMENTS

AND GAO EVALUATION

CONCLUSIONS

The actions taken and proposed by the Army may mitigate the effect of some of the problems discussed in this report. However, we question whether many of the serious problems can be corrected without major and costly modifications. These problems include drivability, durability, and maintainability.

Increased attention needs to be given to the consequences that could result if the vehicles are operated in combat. Also we believe there is insufficient data regarding the long-range cost and benefits of retaining the Gama Goat as an operational vehicle. Previous testing apparently did not disclose the potential for a high frequency of repair and the difficulty of maintenance.

The vehicle should be tested by an independent agency under simulated combat conditions. Then a determination should be made of the cost effectiveness of the improvements and the overall effectiveness of the vehicle in a combat environment.

AGENCY COMMENTS AND GAO EVALUATION

The Assistant Secretary of Defense, Installations and Logistics, did not agree with our suggestion that the vehicle be tested under simulated combat conditions because he believes that sufficient data exists from extensive testing and field usage to support the decision that the vehicle be retained and improved. (See app. II for the complete text of the DOD reply to our draft report.) DOD stated that the product improvement program would correct the majority of the identified shortcomings and cited user acceptance of mission performance, cross-country mobility, maintainability, a marked increase in capability, and an operational readiness rate exceeding 90 percent. In addition, DOD believes a replacement vehicle would be costly and would require substantial time to develop.

As previously stated, we believe that increased attention needs to be given to the consequences of operating the vehicle in combat, the long-range cost and benefits of retaining the Gama Goat as an operational vehicle, and the frequency of repair and difficulty of maintenance.

Also, while the users have accepted the vehicle, they have expressed varying degrees of dissatisfaction to us and to the Army which, in our opinion, supports the need for additional testing of the vehicle before the Army commits itself to a product improvement program.

RECOMMENDATION

DOD has substantially improved the test and evaluation procedures for military systems. Revised guidelines have been issued to the military departments concerning tests to be performed before production authorization. Briefly, these guidelines provide for tests by an independent agency using operating personnel in as realistic an operating environment as possible. Test results are to be reported directly to the chief of the service. For major acquisitions and some that do not fall into this category, the Deputy Director, Test and Evaluation, Office of Defense Research and Engineering, reviews plans for and the conduct of tests and advises the Defense Systems Acquisition Review Council of his opinion as to the desirability of initiating system production.

We therefore recommend that the Secretary of Defense arrange for an independent DOD organization, such as the Office of the Deputy Director for Test and Evaluation, to monitor the reevaluation of the vehicle to determine whether the vehicle should be retained and a product improvement program undertaken or whether it should be replaced. The reevaluation should include tests of the vehicle's ability to perform its mission under simulated combat conditions.

DEFECTS CITED TO GAO BYARMY AND MARINE CORPS PERSONNEL

Windshield wiper motors--excessive failures

Starters--a continual problem with failures

Water accumulation in steering--freezes in winter

Exhaust fumes in driver's compartment

No drain for driver's compartment--water and mud accumulation

Bilge pump does not completely drain compartment

Heater location bad--most do not operate properly

Glass windshield breaks when wing nuts are tightened and
when hot defrost air is blown on it

Rearview mirror arm--not durable

Propellor shafts break and tear body

Breakdowns and replacements of differentials, transmissions,
transfers, and propellor shafts

Clutch replacement a problem because of defective pressure
plates, throwout bearing, and actuating fork

Lack of standardization of propellor shafts

Canvas--fragile and unrepairable

Driving difficult--drifts off road on fast turns and diffi-
cult to control on tank trails

Difficult to load and unload--will not transport Chaparral
ammunition

Cannot mix personnel and cargo

Should not be used for hauling personnel cross-country

Ambulance should not be used in rough terrain

Truss kit ineffective in rough terrain

APPENDIX I

APPENDIX I

Lack of power in high ranges--must be in low gear on all hills

Wheel brake cylinders--unable to locate leaks

Special tools and 2 hours time needed to bleed brakes--must fabricate special tool

Transmission and battery covers fragile

Center steering propellor shaft not durable

Body access plugs work loose and are lost



ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

INSTALLATIONS AND LOGISTICS

19 JUN 1975

Mr. R. W. Gutmann
Director, Procurement and
Systems Acquisition Division
US General Accounting Office
Washington, D. C. 20543

Dear Mr. Gutmann:

The Army has completed its review of the deficiencies identified in your report on the M561 Cargo Truck, GAMA GOAT (OSD Case #3937), in accordance with the schedule provided you in our letter on 9 January 1975.

I regret the misunderstanding about your participation in the Army's review; however, I understand that you have been furnished a copy of the worksheets which reflect the contents of the individual questionnaires collected during the review. Furthermore, copies of the Army's studies have also been furnished your office.

Our major concern with your report centered on the recommendation that consideration be given to replacing and disposing of the M561 Cargo Trucks in the Army inventory. Our analysis indicates that the acquisition cost of the inventory of this vehicle was \$231.5 million and to replace the M561 with a new vehicle, providing similar performance characteristics, would cost at least \$270 million. To replace it with a 6 ton tracked cargo carrier, M548, on a one for two basis, would cost approximately \$500 million. It would cost approximately \$80 million to replace it with a 1 1/4 ton commercial pickup truck. However, the latter alternative is not a viable alternative for two basic reasons: The vehicle does not have the cross-country mobility that is required of the GAMA GOAT, nor can it swim or float. Not only is it a costly proposition to replace the GAMA GOAT with a comparable vehicle, but it also takes time. It would be mid-1980 before the last vehicle is delivered.

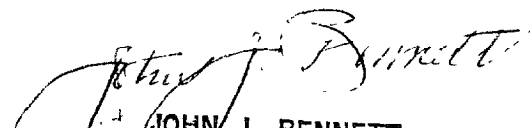
Your recommendation to test the GAMA GOAT, in order to determine whether it should be retained and product improved or replaced and disposed of, is not supported by the Army. This vehicle has undergone extensive testing and has now experienced three years of field usage. Sufficient data exists upon which a decision may be based.

These data indicate that it is prudent to retain the vehicle. While the GAMA GOAT fills the essential needs of the Army, past test and usage data point out that some product improvements are warranted. These product improvements must, however, be cost effective or be required for compliance with mandatory regulations, health, and safety reasons, etc. The current product improvement program is being reevaluated and revised, as necessary, in light of your report and recent additional improvements recommended by the user. We share your concern that the vehicle be effective. That is our goal. While we do not agree with your recommended test, I would like to point out that the improvements will be tested, as necessary, and proven before they are applied.

The attached summary is based on detailed evaluations by TRADOC, AMC, and DA, which have been furnished your office. These reports provide an excellent overview of the Army's analysis of deficiencies and their program to resolve, in a cost effective manner, the problems identified in your report.

In view of the above, I believe your report has served an important role in focusing attention on critical problems encountered with the introduction of this new vehicle concept into the Army inventory. The Army's analysis of these problems and the program to correct these deficiencies should insure a long and useful life for the M561 cargo truck in the Army inventory.

Sincerely,


JOHN J. BENNETT
Acting Assistant Secretary of Defense
(Installations and Logistics)

Enclosure
Summary

SUMMARY OF GAO REPORT ON GAMA GOAT

1. GAO Report. The General Accounting Office (GAO) has published a draft report critical of the Army truck - the GAMA GOAT. The GAO conducted a survey of officers and enlisted men, in US-based units that have the GAMA GOAT, and received some derogatory comments. From these comments, the GAO concluded that the vehicle is not effective in performing its basic transport mission. The report recommends an independent DOD agency monitor tests of the vehicle, under simulated combat conditions, to determine whether (1) it should be retained and product improved or (2) replaced and disposed of.

2. Army Action: The GAMA GOAT was fielded three years ago and information received from field commanders, during this time, indicated that the vehicle is experiencing high readiness rates and is performing its mission in an acceptable manner. As a result of the GAO report, the Army initiated an intensive investigation into the performance of the vehicle. In an effort to evaluate the need and the benefit to be gained by the GAO recommended test, the developer of the vehicle - the US Army Materiel Command (AMC) and the user of the vehicle - the US Army Training and Doctrine Command (TRADOC) were requested to independently develop and submit their positions. AMC was requested to base its position on auditable data contained in the sample data collection system (SDCS) for this vehicle, and other available data. TRADOC was requested to conduct a vertical review beginning with driver and mechanic comments and concluding with command comments and conclusions. Meanwhile, the Systems Review and Analysis Office of HQDA reviewed the data collected in conjunction with the GAMA GOAT sample data collection system to determine if it truly represents the overall GAMA GOAT fleet, if it is statistically sound, and if it can be used to draw conclusions about the GAMA GOAT's effectiveness.

3. Army Position. The above results have been evaluated and it is the Army position that the test recommended by the GAO is not necessary. Sufficient data already exists upon which a retain or replace decision can be made. This data also shows where product improvements are warranted. The Army position is to retain and product improve the GAMA GOAT. However, the improvements will be tested, as necessary, and proven before they are applied.

a. The Developer Position: AMC cited considerable historical developmental and test data and states that the GAMA GOAT has consistently maintained an average operational readiness rate in excess of the DA standard of 90%. AMC concludes that the product improvement program (PIP) will improve the vehicle performance and user acceptance and recommends that the GAO recommended test not be undertaken.

b. The User Position: TRADOC expresses user acceptance of mission performance, cross-country mobility, maintainability and a marked increase in capability. It expresses confidence that the product improvement program will correct the majority of the shortcomings previously

identified and recommends expansion in three areas - communications, drains, and truss kit storage. Input was received from overseas units in Europe, Korea, and Hawaii. The comprehensive survey also assigned a statistical value to the responses to the specific GAO points in order to place them in proper perspective. The user concludes that the product improvement program will materially aid in providing increased assurance of combat capability and recommends the vehicle be retained, and a special in-process review (IPR) be convened to establish the final PIP and that the GAO recommended test not be undertaken.

c. Sample Data Collection System: The review of the sample data collection system reveals some statistical inaccuracies associated with sample sizes, sampling techniques, fleet age, operational readiness, and confidence interval estimation. Most significant is the disproportionately large CONUS sample size as compared to the actual distribution of GAMA GOAT's worldwide. This inaccuracy in relative sample sizes provides a worldwide operational readiness rate on the high side because CONUS has had historically higher operational readiness rates than Europe. Application of stratified sampling theory provides an appropriate weight to both Europe and CONUS data based on the actual population of GAMA GOAT's. Hence, it provides a more realistic worldwide rate which runs up to 3 percent lower. This shows the truer operational readiness rate of the GAMA GOAT to be essentially at the DA standard of 90% or just below. Despite the inaccuracies, the SDCS presents an essentially valid picture and is a useful management tool when used in conjunction with other documents such as the Equipment Improvement Recommendations (EIR) and the Equipment Operational Readiness Trend (EORT) reports.

d. Driver Training: The GAO report alludes to driver training being inadequate and the TRADOC survey reveals that only 15% of the drivers interviewed had received any formal training. The survey also indicates that the degree of satisfaction, expressed by the user, closely paralleled the amount of training and experience he had. While the vehicle may be unconventional, 92% of the drivers had no difficulty learning to operate the vehicle. It is Army policy that trained personnel are available before new equipment is introduced and trained personnel were in the field before the GAMA GOAT was fielded three years ago. However, as a result of the GAO report, a technical team was dispatched to Forts Carson, Bragg, and Campbell to provide additional training and assistance.

4. Army Plans. It is planned to retain and product improve the GAMA GOAT. The PIP is currently being finalized to assure an effective vehicle. The improvements will be tested, as necessary, and proven before they are applied. Technology and the GAMA GOAT's performance will continue to be monitored, for additional improvements, to insure continued user acceptance. The evaluation of the Sample Data Collection System will be furnished to AMC for incorporation, as necessary, to provide for more valid data.

PRINCIPAL OFFICIALS RESPONSIBLE
FOR ACTIVITIES DISCUSSED IN THIS REPORT (note a)

	Tenure of office	
	From	To
<u>DEPARTMENT OF DEFENSE</u>		
SECRETARY OF DEFENSE:		
Donald H. Rumsfeld	Nov. 1975	Present
William P. Clements, Jr. (acting)	Nov. 1975	Nov. 1975
James R. Schlesinger	July 1973	Nov. 1975
ASSISTANT SECRETARY FOR (INSTALLATIONS AND LOGISTICS):		
Dr. John J. Bennett (acting)	Apr. 1975	Present
Arthur I. Mendolia	June 1973	Mar. 1975
<u>DEPARTMENT OF THE ARMY</u>		
SECRETARY OF THE ARMY:		
Martin R. Hoffmann	Aug. 1975	Present
Howard Callaway	May 1973	July 1975
ASSISTANT SECRETARY (INSTALLATIONS AND LOGISTICS):		
Harold L. Brownman	Oct. 1974	Present
Vacant	July 1974	Oct. 1974
Eugene E. Berg	Nov. 1973	July 1974
ARMY MATERIEL COMMAND:		
Gen. John R. Deane	Feb. 1975	Present
Gen. H. A. Miley, Jr.	Nov. 1970	Jan. 1975

a/The officials listed above are those having responsibility for the current Gama Goat problems. These officials were not responsible for the decision to purchase this vehicle.

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